ERECTION OF A NEW GENUS FOR THE "*DUBERNARDI*-GROUP" AND A NEW SPECIES OF PIERIDAE (LEPIDOPTERA: RHOPALOCERA) IN CHINA

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In this paper, a new species of Pieridae is described under a new generic classification for it and the "*dubernardi*-group". The butterflies here dealt with were collected by the author during 1992 and 1993 from Sichuan, Yunnan and Tibet. All type specimens are preserved in the author's collection.

The "*dubernardi*-group" comprises a group of Asian Pierids belonging to the genus *Pontia* Fabricius or the genus *Synchloe* Hübner. The latter is often merged into *Pontia* in most recent taxonomic treatments. The "*dubernardi*-group" incorporates *Pontia dubernardi* Oberthur, *P. d. gyantensis* Verity, *P. d. rothschildi* Verity, *P. d. bromkampi* O.Bang-Haas, *Pontia chumbiensis* de Nicéville, *Pontia kozlovi* Alpheraky, *P. k. aljinensis* (R.X.) Huang and Murayama, in China, and *Pontia sherpae* Epstein in Nepal.

The "*dubernardi*-group" was initially classified as *Pieris* due to the similar wing-shape, wing-venation and the presence of postdiscal black markings in forewing space 3 and hindwing space 6. De Nicéville placed *P. chumbiensis* in *Parapieris,* a genus he proposed "for *Papilio callidice* Esper (the type)". Röber, in Seitz, followed this lead, placing *P. dubernardi, P. chumbiensis* and *P. kozlovi* in *Synchloe* Hübner and alongside *Pontia callidice* due to the presence of a black discoidal spot on the upperside of the forewing, the configuration of the genitalia and the flight-pattern and behaviour of the living insect *etc.*

It is most likely that the "*dubernardi*-group" has a taxonomic position between *Pieris* or *Artogeia* and *Pontia* or *Synchloe.* Its true taxonomy is decided by judgement on which is the main structure in generic classification. Here I state most of the important morphological features of the "*dubernardi*-group".

(a) Wing shape rather narrow as in *Aporia*

(b) Discoidal cell slightly longer than 1/2 costa

(c) All veins slightly marked with black

(d) Black discoidal bar of forewings conspicuous

(e) Both sexes bear an apical marking on the hindwing space 6

(f) Female upperside has postdiscal blackish markings in at least forewing spaces 1 to 3, and sometimes also in the hindwing postdiscal area.

The features outlined above occur more readily in *Pieris* than in *Pontia*. *Pieris* shares features a, b and e wholly and feature c partially within the group. *Pontia* only shares feature d as does *P. callidice*. Although *P. callidice* also has well developed blackish submarginal marking on both wings, it cannot be said to share feature f for the following reasons. The markings are much narrower and are more interrupted in space 2 of the forewing and are much closer to the outer margin than to cell-end on the hindwing. Moreover, there is an undescribed taxon (described in this paper) closely resembling the "*dubernardi*-group", from Mount Gonga, Sichuan which indicates that feature d is not an important feature in the classification of the "*dubernardi*-group". As virtually all the veins are marked with black, the discoidal bar of the forewing within the group is connected to the black lines or streaks on the nearby veins, unlike *Pontia* where it is distinct. This feature is most apparent in the new taxon. I consider therefore, that feature d is only a specific systematic structure.

The "*dubernardi*-group" is very sharply different from *Pieris* in features c and f. Therefore, a new genus needs to be erected for the entire "*dubernardi*-group" and the new taxon from Sichuan, as follows:

Sinopieris gen.nov.

Type species *Sinopieris gongaensis* Huang

Wing-shape: Generally as in *Aporia*. Both wings are rather narrow with a smoothly rounded outer margin.

Wing-venation: Forewing: R4 originating near the end of R3, very short or disappeared as in *Pieris* and *Pontia*. R2 originating before and near the upper angle of the cell. Discoidal cell slightly longer than 1/2 costa.

Wing-pattern: Both sexes, both sides, both wings: All veins are broadly or thinly lined with black.

Upperside: Forewing: Almost all veins are broadly pencilled with black from the apex to vein 2 or 3.

Underside: Hindwing: Ground colour yellowish, matching the colour of the forewing apex. Black lines or streaks on or around the veins are very conspicuous, often broad and strong.

Male upperside: Submarginal blackish markings present in at least forewing space 3 and hindwing space 6.

Female upperside: Both wings are dusted with more blackish scales than in the male. Postdiscal black band occurs in at least forewing spaces 1-3 and hindwing space 6, and is more extensive than in the male.

Female underside: Postdiscal band of the upperside is partially repeated but is sometimes absent.

Male genitalia: Valva is more or less squarish. Saccus is very thick, at least two or three times thicker than its length.

The new genus *Sinopieris* can be distinguished from *Pontia* (including *P. callidice*) by the structure of the male genitalia. The valva is somewhat squarish, whilst in *Pontia* it is triangular with a much longer ventral margin. The saccus is very thin in *Pontia*, very unlike the thick structures seen in *Sinopieris* (see figure 1 A-F).

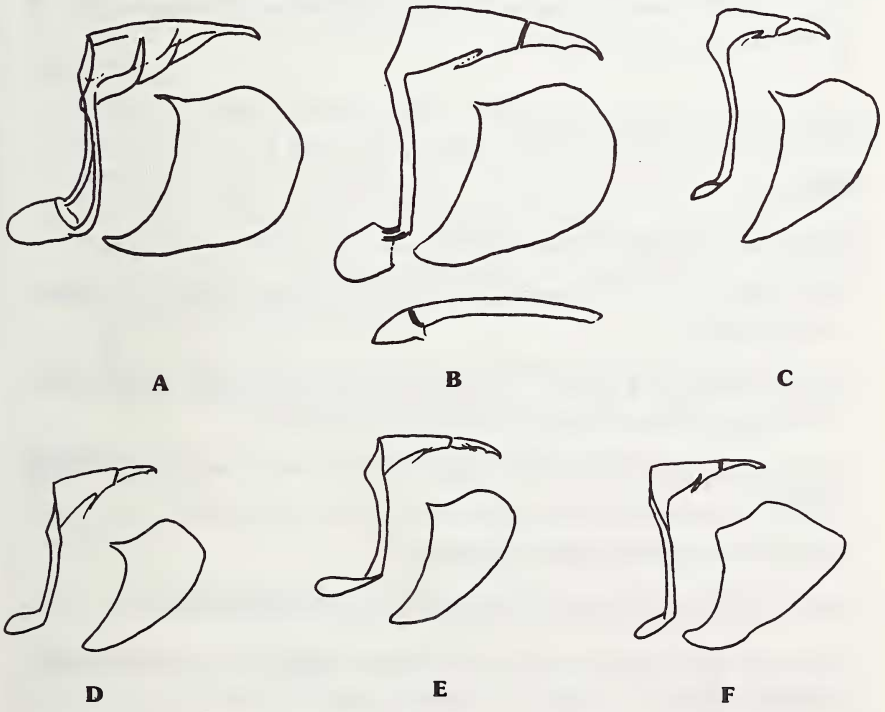

Fig. 1. Male genitalia: Ring and valva.
(A) *Sinopieris dubernardi* (B) *Sinopieris gongaensis* sp. nov. (C) *Pontia chlorodice gongdisica* ssp. n. (D) *Pontia callidice halasia* (E) *Pontia callidice kalora* (F) Pontia daplidice.

In addition, two other species, *Aporia venata* Leech and *Aporia davidis* Obërthür can probably be placed in *Sinopieris*. They show a curious resemblance to the new taxon and the "*dubernardi*-group" in features a, b, c, e and f listed above. The greatest disparities are that their ground colour of the underside is pale yellow and not canary yellow, and that the black vein markings are much thinner than those of the "*dubernardi*-group". However, this contrast is also found between *Aporia hippia* Bremer and *Aporia bieti* Obërthür, which are homogeneous. Therefore, I consider that the canary yellow ground colour and the width of the black streaks on veins are not generic systematic structures. There is another doubt that both *A. venata* and *A. davidis* pose, this being that the forewing submarginal band is greyish and less brilliant on the upperside and has disappeared completely on the underside. This, however, is also seen in the female of the new taxon *S. gongaensis*. Therefore, I feel that more detailed examinations will demonstrate that *A. venata* and *A. davidis* belong to *Sinopieris*.

Sinopieris gongaensis sp. nov.

Male:

Head black, eyes brown and smooth.

Labial palpus porrect, striped black and white, clothed with long blackish hairs beneath.

Antennae about 0.4 length of forewing costa, superficially ringed white. Club well marked, abrupt, black-tipped, oar-shaped.

Thorax above and below black, densely clothed with long black and grey hairs.

Legs black and white striped lengthways.

Femora densely clothed with long grey and white hairs beneath.

Cilia white on both wing surfaces and inner margins, black outer margins to both wings.

Forewing length 25.5 – 27mm.

Both wings ground colour chalk white.

Upperside: Wing-base thinly powdered with black scales.

Forewing: All veins heavily marked in black streaks except for veins 1 to 3 which are only thinly lined with black, so costal margin is narrowly marked with black. Vein-tips from apex to tornus are broadly marked with black, so marginal portions of spaces 2 to 6 in ground colour are narrower. Submarginal black band strong and extensive, invariably connected with marginal black markings which are well continued in spaces 2 and 3, becoming narrow and sometimes interrupted in spaces 1, 4, 5 and 6.

Hindwing: All veins remarkably thinly lined with black except for 2a and 3a, appearing broadly darkened where the underside's much broader streaks shine through. Costal margin lined in black. Outer margin marked with triangular black spots on vein ends. A black spot, somewhat smudged, appears in space 6.

Underside:

Forewing: White ground colour. Apex narrowly coloured canary yellow, matching hindwing ground colour. All veins evenly broadly marked with black with vein tips as upperside. Submarginal band of upperside often disappeared, at most appearing as black scales dusting the middle of veins. However, submarginal area invariably appears darker – slightly blueish-grey in appearance – where the upperside band shows through.

Hindwing: The same in both sexes. Ground colour canary yellow. All veins stand out in very heavy black.

Female:

Head, eyes, labial palpus, antennae, thorax, abdomen, legs and cilia as in male.

Forewing length 26mm

Upperside:

Forewing: Ground colour yellowish, heavily powdered with black scales, appears somewhat brownish. Maculation of male repeated but in a more brownish, less brilliant black. Apex more coloured yellow, matching the ground colour of hindwing upperside.

Hindwing: Ground colour in shade of light yellow as in forewing apex. Basal and discal areas sparsely dusted with black scales except for space 7. All veins marked with broad black streaks of the same width as in male hindwing underside, except for 2a and 3a. Spot in space 6 brownish, beginning a postdiscal line of discontinuous blots in spaces 3 to 5.

Underside: As in male.

Sinopieris gongaensis

Distribution: Mount Gonga of Sichuan, China.

Holotype: Male

Allotype: Female

Paratypes: 2 Males. Muoxi, Luding, Sichuan. 3400-3800m. 18 July 1992.

This new species closely resembles *Sinopieris dubernardi rothschildi* (Verity), but can be easily distinguished from the latter as well as other members of the "*dubernardi*-group" in having its forewing submarginal band extended into spaces 4-6. It also has an apex with a white line in the marginal portion of space 6. In fact, this new species looks like a smaller and darker version of *A. venata* Leech which may belong to *Sinopieris*. Both species fly rapidly with *Sinopieris dubernardi* in the grassland near forest zones at heights above 3400 metres. I have noticed that all of them have a similar flight pattern.

LATTICED HEATH IN STAFFORDSHIRE

by Jan Koryszko (6089)

On 17th July 1994, at Park Hall Country Park, Staffordshire while in the sandstone quarries collecting moths, I noticed approximately a dozen Latticed heaths (*Semiothisa clathrata*) flying in the warm sunshine.

I have been expecting this species to turn up here for some years. Before 1979 it was found only in the extreme south and east of the county, on waste-ground and railway embankments at Wigginton, Walsall and Hanbury. But since then it has spread in the county northward, reaching Meaford, Apedale and Barlaston Rough Close Common where I saw a single specimen on 18th July 1994. This species is a newcomer to north Staffordshire in recent years.